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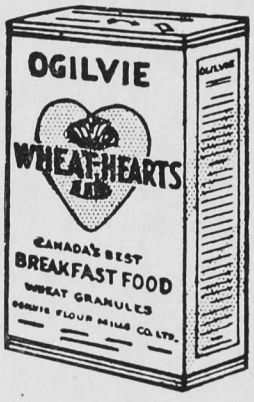

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Clinical Section

Bone Marrow Efficiency

By

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The importance of the blood, in the preservation of health, has been recognized in all ages. Moses refers to it as the "soul of the flesh": Ambroise Paré called it "the treasure of life": and Bordeu says it is "liquid flesh". Throughout the Old and New Testaments "life" and "blood" are practically synonymous terms. In the middle of the 16th century Servêtus, like many theologians of that age, was interested in discovering the anatomical habitat of the soul. He read in Leviticus (17-11) "the soul is in the blood," and decided, that to discover the habitat of the soul, he must discover the origin of the blood, and to do that he must find how it moved. Though not a scientist nor a medical man, he pursued his search so assiduously that he actually discovered the circulation of the blood through the lungs—75 years before Harvey. He finally decided to his own satisfaction that the soul was formed by an "admirable elaboration" from the blood, in the neighborhood of the choroid plexus. Where this blood came from, he did not determine beyond accepting the Galenic teaching that it was made in the liver and purified in the lungs.

Indeed, though the importance of the blood was instinctively recognized from the dawn of history, its true source remained unsuspected until men became adept in the use of the microscope. It was Neumann & Bizzozero (independently) in 1868 who first suggested that the red blood corpuscles originated in the bone marrow. Ten years later (1878) Ehrlich published his first work and founded modern hæmatology. It is now almost universally accepted that all the formed elements of the blood except the lymphocytes and monocytes arise from bone marrow. The old theologians would, I am sure, accept modern scientific evidence to prove that the soul itself resides in the bone marrow.

Whether or not we should like to accept this idea, we are bound to admit that the bone marrow is one of our most essential organs. That it so long escaped recognition as an active organ is due to the fact that it is spread about and hidden inside of the bones, which are themselves among the most unchanging, avascular and inactive parts of the whole body, with functions that are largely mechanical. Judged by its size alone, the importance of the marrow becomes evident. The size of the active marrow at ordinary times is comparable to that of the liver: during periods of stress it becomes much larger. The cells that are fabricated in this tremendous organ perform at least a dozen functions, each of which is vital to health. These functions have been more intensively studied in the past decade than at any other time; and, it is gratifying to realize that these recent studies have been productive of most happy results.

I propose to deal briefly with a few of the practical points that have emerged from recent work in connection with bone marrow and its functions.

Nomenclature and Classification

The nomenclature of the anæmias has always been greatly confused. Some anæmias are named for their discoverers — for example: Addison's, Banti's, Von Jaksch's; some have been named after symptoms—for example: "Chlorosis"; some have been named and classified because of supposed or real etiological factors—for example: Hæmolytic anæmias; and some have been named because of underlying histological changes—for example: aplastic anæmias. All this confusion, of course, will not be cleared up until that happy day in the distant future when we shall know the exact causes of all the anæmias. In the meantime, however, something can be done to clarify the nomenclature.

One of the most productive sources of confusion is the use of the words "primary" and "secondary" anæmias. The conception of a pure primary anæmia is becoming more and more difficult to maintain. Even classical Addison's anæmia is now considered to be secondary to certain gastro intestinal deficiencies, and Chlorosis also is likely secondary to defective iron metabolism. Also the terms secondary and primary cause confusion because they are sometimes used as synonymous with low color index and high color index anæmias respectively. This is obviously misleading. Certainly to use these terms to denote main classifications, is no longer possible.

The effort to divide anæmias into two groups according to whether formation is defective or destruction is excessive, has also proved unsatisfactory from a practical clinical point of view. Hæmolysis comes less and less into the picture as our knowledge increases, and except when it is very abnormal the rate of blood destruction is impossible to estimate clinically.

Modern hæmatology now recognises that most so-called blood diseases can be more properly regarded as bone marrow diseases. The correlation of blood changes and bone marrow histology has developed to such an extent that many blood conditions can be definitely ascribed to particular changes in the marrow. A classification may be set up, dominated by the actual changes or deficiencies in the marrow. The bone marrow has four main functions, and a particular blood dis-

ease or group of diseases may arise from the failure of each of these—as shown in the table.

FUNCTION	DISEASE
1. Haemoglobin production	Hypochromic anaemias.
2. Red Blood cell formation	Pure red cell anaemia.
3. Granulocyte production	Neutropenia (Agranulocytic angina).
4. Platelet production	Thrombocytopenia (Purpura Haemorrhagica).

This group may be called the selective or the simple bone marrow diseases because in each only one function is affected. But of course the bone marrow does not always fail in this selective manner. Frequently all the formed elements are involved, *i.e.*, there is defective production of granulocytes, red blood cells and platelets, and we have:

1. Pernicious types (Addison's Dibothreocephalus, P.A. of pregnancy, Sprue, cancer of stomach, resection of stomach).
2. Aplastic and Hypoplastic anæmias.

There is also a third group which represents a *distorted bone marrow* function, and which affects the different elements in various combinations and to various degrees. That is, for example, one may have a marked thrombocytopenia, together with moderate or slight deficiency in other formed elements and hæmoglobin; or one may see a neutropenia plus a degree of thrombocytopenia. Indeed these irregular and distorted bone marrow deficiencies are more common than those that may be called classical or pure. On this basis the following classification emerges:

A. Selective bone marrow failure:
   1. Failure of hæmoglobin function — Hypochromic anæmias.
   2. Failure of granulocytic function—Agranulocytic angina or neutropenia.
   3. Failure of Red cell formation — Pure red cell anæmia.
   4. Failure of Platelet formation—Thrombocytopenia or purpura hæmorrhagica.

B. Failure in all formed elements.
   1. Pernicious anæmias (Addison's, Dibothriocaphalus, Pregnancy, Sprue, etc.).
   2. Aplastic and Hypoplastic Anæmias.

C. Mixed and irregular forms of failure.

It is not suggested that this classification is complete or final. It represents rather a clinical point of view which covers our present knowledge in a practical way.

HYPOCHROMIC ANAEMIA

By far the commonest of all these anæmias is hypochromic anæmia, and I shall confine my further remarks to it. This term simply means a low color index anæmia, and includes all anæmias of secondary type, or any anæmia in which the hæmoglobin only or mainly is deficient. It means that each red cell is turned out of the bone marrow with less than a full complement of hæmoglobin; for some reason the bone marrow is failing to do a 100% job in connection with pigment. All other elements in the blood are usually fairly normal. However, when these anæmias become profound, the RBC's become definitely reduced. This applies particularly when the color index descends to the neighborhood of .5.

CAUSES

There are a great many contributary causes to deficiency in hæmoglobin production, and it is impossible to be sure that there is a common factor involved throughout. Modern research suggests that they are all due to insufficient iron supply to the bone marrow. This may arise for four reasons:

1. Excessive loss of iron by hæmorrhage.
2. Insufficient iron intake.
3. Defective alimentation of iron.
4. A combination of two or more of these factors.

While this conception cannot be proven as yet, it is a very useful hypothesis for practice, because it works in a therapeutic way.

Hypochromic anæmia is liable to arise at various critical stages of life, and in response to different types of strain on the hæmoglobin forming function. These stages, or points of strain are seven in number, and correspond roughly to Shakespeare's seven ages.

1. INFANCY. Hypochromic anæmia is fairly common at this stage and is almost certainly due to insufficient iron supply. It arises as a rule in children who have been continued too long on pure milk feedings. Milk contains very little iron and the iron supply that babies inherit from the mother becomes exhausted in a few months. Any Anæmia in early childhood or infancy should be suspected of having the element of iron deficiency involved even though the blood picture is not that of a simple hypochromic anæmia. Distorted or unusual blood pictures are much more likely to occur in babyhood than in later life.

2. The next critical point comes at *puberty*. At this time there is in boys and girls a physiological reduction in hæmoglobin which should be of mild degree and of short duration. For some reason (again, possibly insufficient iron ingestion) this physiological condition may be accentuated and prolonged so that it becomes pathological and constitutes ordinary chlorosis. Though chlorosis has become much less common than it was thirty years ago, it has decidedly not disappeared. In the routine examination of the blood of nurses in training, many cases have been found.

3. The next point at which hypochromia may appear is during or after *pregnancy*. During the last half of pregnancy there is an apparent reduction in hæmoglobin which is due to dilution of the blood by an increased actual amount of plasma. This is purely physiological, and unless the hæmoglobin falls below 60%, it does not require treatment. In some cases, however, the hæmoglobin falls much lower than this, and in

some cases it does not regain its normal level immediately following delivery, which it should do in purely physiological anæmia of pregnancy. The resiliency of the bone marrow appears to be impaired and these mothers may go on for months or years with a definitely insufficient hæmoglobin which may become worse with each pregnancy. This accounts for a good deal of the prolonged post partum debility that one encounters. Theoretically it can be accounted for by presuming that the fætus has impoverished the mother of her hæmoglobin forming substance or of iron. In some cases this process may have been contributed to by defective diet, bleeding or infection.

4. HAEMORRHAGE is the next hazard that confronts the hæmoglobin forming function of the bone marrow. There is a very wide variation in the manner of response to hæmorrhage by different individuals. Some will, in a few weeks spontaneously regenerate all the elements of the blood even after a very large hæmorrhage. Others may take months to effect the same gain, and some may remain in a more or less hypochromic condition for years. This latter event is more likely to occur in the presence of repeated bleeding.

5. INFECTIONS of any sort are liable to induce defective hæmoglobin formation. This applies particularly to gross infections. The rôle played in the production of anæmia by minor foci of infection, such as dental abscesses and sinus infection has probably been over-emphasized. However, *chronic tuberculosis, chronic arthritis, chronic osteo-myclitis, chronic kidney infection, rheumatic carditis, sub-acute bacterial endocarditis and amyloid disease,* are particularly potent factors in this respect. These chronic infections account for a large number of the pale faces that one sees in a visit to any general hospital ward or to any sanatorium.

6. MALIGNANT neoplasms of any sort may be associated with poor hæmoglobin formation. This particularly applies to cancer of the stomach and of the right side of the colon. In these cases an exceedingly profound anæmia may arise even though there is no obvious bleeding. Such anæmias may be accounted for by the limited diet ingested by these patients, defective iron absorption from the food, and deficient hydrochloric acid secretion.

7. In the *latter part of life* arterio sclerosis unquestionably contributes to the production of hypochromia. This is probably due to defective circulation in bone marrow but may also be related to the impaired alimentation which almost invariably exists in these patients.

Besides this group of seven we have two other types of hypochromia, in which causes are not so clear and which must still be regarded as unexplained or idiopathic hypochromic anæmias. These are chronic chlorosis and Banti's disease or splenic anæmia.

Chronic Chlorosis is that common hypochromic anæmia which occurs almost exclusively in women during the child bearing period. It is often accompanied by achlorhydria and in about one-third of cases by a palpable spleen and spooned finger nails. There has been no satisfactory explanation for its occurrence so it is commonly called chronic idiopathic hypochromic anæmia. Also it is frequently referred to as achlorhydric anæmia and microcytic anæmia. Neither of these terms is justified because many cases are neither achlorhydric or definitely microcytic. The term chronic chlorosis is retained in this classification because:—

(1) It has long been used in medical literature.

(2) It is concise and euphonious—much easier to say and remember than chronic idiopathic hypochromic anæmia.

(3) The blood picture is identical with that of ordinary chlorosis.

(4) Many — if not all — cases are definitely a perpetuation or a recurrence of the chlorosis of puberty.

(5) This term differentiates it from Banti's disease, which is also chronic idiopathic hypochromic anæmia.

The outstanding feature of chronic chlorosis is, as in ordinary chlorosis, that it is almost entirely limited to the *female sex.* It is true that occasionally unexplained cases occur in men. Those, however, are so few as to be medical curiosities. The preponderance of this anæmia in women is about 98%. Also it has some definite relationship to *child bearing and to fecundity.* Nearly all of its subjects have borne children. Though it does occasionally occur in unmarried and nuliparous women, one sees practically no cases in women who are known to be barren. The reasons for these striking characteristics are still obscure. They must surely have some relation to the underlying cause. Many cases unquestionably arise immediately following pregnancy. For some reason the bone marrow fails to respond in a normal way after delivery and the relative hypochromia of pregnancy is perpetuated and becomes absolute. The bone marrow apparently becomes habituated to supplying a blood with a low percentage of hæmoglobin and persists in this habit.

Just a word about *Banti's disease,* or splenic anæmia. It is here classified with chronic chlorosis as an "idiopathic hypochromic anæmia." Banti's original description included any unexplained anæmia with a large spleen. Since that time, many separate entities have been recognised and cut off from the original group. Such conditions as leukæmia, chronic malaria, and many others are now easily recognised. Ten years ago, the diagnosis was made on the presence of an unexplained hypochromic anæmia plus a palpable spleen. These cases were treated and frequently cured or improved by splenectomy. On looking back there seems no doubt that many of these

were chronic chlorosis and could have been cured by iron therapy. In the light of our present knowledge it would appear that the possibility of chronic chlorosis should be eliminated before splenectomy is carried out. If there is a great departure from the usual age and sex incidence, if the spleen is very large or if symptoms or cirrhosis of the liver are present, then Banti's disease seems likely. However, in less advanced cases treatment as chronic chlorosis should be first instituted.

TREATMENT

So far as treatment of the blood is concerned, it does not matter whether a hypochromic anæmia is secondary to some obvious disease or is apparently idiopathic. They should all be treated in the same way. First of all, all possible contributary causes should be sought for and treated. Whether these contributary causes, when they exist, are curable or not, the anæmia itself should always be treated with iron. The amount of iron that is necessary to produce an effect varies in different circumstances and in different individuals. However, there is no harm in giving the maximum dose in all cases where it can be taken without discomfort. This maximum dose consists of about one gram of metallic iron daily which represents about 100 grains of ferri et ammon, citrate. In a few people this quantity of iron will produce gastro intestinal symptoms such as nausea, abdominal pain, constipation or diarrhoea. However, most patients will develop a tolerance to it if they are started with 10 grains, three times a day, and gradually worked up.

TO SUM UP —

Hypochromic anæmia is to be suspected at all ages. It may arise for no apparent reason or may be associated with other diseases. In any event it should be treated with Fe in doses about three times as large as those that have usually been given. By this means many cases will be cured and many others will show marked improvement in general health and well-being, even though their underlying disease may be incurable.

The Friedman Test for Pregnancy

Preliminary Report

A. T. CAMERON, D.Sc. (Edin.)

Professor of Biochemistry, University of Manitoba

At the request of the Department of Obstetrics and Gynæcology of the University, the Medical Research Committee undertook to make the Friedman Test available to the Profession of the Province. A grant from the College of Physicians and Surgeons defrayed the initial expenses, and rigid exigence of pre-payment of the fee has just enabled us to pay our way. The actual work has been carried out in the Department of Biochemistry at the Medical College, under supervision of the Committee.

The work was started last December. After an initial period of a month necessary to obtain a supply of animals ready for testing, actual tests were commenced on January 18th last. There has been a steady demand for them ever since.

So far (to October 30th) 92 tests have been completed. Of these 5 were experimental or demonstrational, 80 were routine clinical tests, and 7 were repetitions made without charge when the initial result was doubtful. The 80 tests gave 45 positive and 35 negative results; 13 of the positive and 17 of the negative tests have been subsequently confirmed clinically. One positive test proved to be wrong. We still await the final clinical reports concerning the remainder.

The majority of the tests have been made to determine presence or absence of pregnancy, but cases of ovarian cyst, hydatidiform mole and possible subsequent chorionepithelioma, dead fœtus, etc., have been investigated by the test, and some of the more interesting results will be reported later.

It is pleasing to note that the 80 tests have been made for no fewer than 45 practitioners.

Only 5 tests have been made for doctors outside Greater Winnipeg. I have delayed stressing in the *Review* the value of the test and its availability for practitioners throughout the Province, until something more definite could be stated about a suitable preservative for the sample of urine. Some recently published work, and some of our own tests indicate that boracic acid is very satisfactory.

It is probably desirable to mention again the instructions concerning the urine sample.

A morning sample of urine is necessary. At least 3 oz. should be sent in a clean bottle, stoppered by a clean cork. Catheterization is only necessary if any vaginal discharge is present and it is impossible to obtain a "clean" specimen. The specimen should, whenever possible, be delivered the same morning to the Department of Biochemistry at the Medical College. If it is necessary to mail it or through some other cause it cannot be delivered the same day, about 5 grains of boracic acid (as much as can be piled on a 10 cent piece) should be added for each 3 oz. of urine, and the urine well shaken.

The doctor sending the sample should furnish his presumptive diagnosis, the date of the last menstrual period, etc., and a name or number for identity. The fee ($5.00) must always be sent with the sample.

Mailing Address: A. T. Cameron, Department of Biochemistry, Medical College, Winnipeg. Cheques should be made payable to the **Medical Research Committee,** University of Manitoba.

The result will be telephoned or mailed 48 hours after receipt of the sample. Published data indicate that the test is 98 per cent. accurate.

*The Chronic Diarrheas

By

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Diarrhea is a symptom encountered very frequently. It is not a disease and may occur from a variety of causes. A clinical classification is therefore very difficult, but an attempt has been made to tabulate some of the more important etiological factors.

In the investigation of a case of diarrhea, as in any other illness, a careful history is important. These special points should be carefully elucidated:—duration; number of stools; type of stool, including its color, consistency, whether watery, frothy or bulky and chalk-like, the presence of food particles, segments of worm, pus, mucus or blood, and if the latter is present whether it precedes, is part of, or follows the stool; the time of stool and if related to the taking of food or certain articles of diet, to emotional strain or to the menstrual cycle. Finally, the presence or absence of pain or tenesmus should be noted.

A general physical examination is essential and this must include a digital rectal examination. We must not allow our attention to be centred exclusively on the intestinal tract, but the patient as a whole must be considered. This is true in every phase of medicine, of course, but perhaps more so in considering the diarrheas, the etiology of many of which is always obscure.

Much can at times be learned from the history and examination, but these can be augmented by gastric analysis, blood count and microscopic examination of the stool for parasites, ova and tapeworm segments—procedures available to all of us. If the diagnosis is still obscure, specialized examination by the sigmoidoscope and the Barium meal and enema should be carried out.

It is only by these careful routine measures of history and examination, plus the essential laboratory investigations, that we can form an opinion of the etiological background of the diarrhea and be in a position to treat it correctly. Unfortunately, however, even after careful search, the etiology may remain obscure.

The following classification is presented in an attempt to make the clinical consideration of diarrheas more systematic:

A. Due to disease of the bowel.
   1. Tuberculosis
   2. Typhoid fever
   3. Dysentery – amœbic
      bacillary
   4. Non-specific (ulcerative) colitis
   5. Malignancy

B. Where no disease of the bowel exists.
   1. Gastrogenic – achlorhydria
   2. Reflex
   3. Neurogenic
   4. Allergic
   5. Irritable (spastic) colon
   6. Habit
   7. Dietary – deficiencies

C. Accompanying metabolic disorders.
   1. Pancreatic deficiency
   2. Steatorrhea (non-tropical sprue)

D. Associated with general diseases.
   1. Cardiac decompensation
   2. Uræmia
   3. Grave's disease
   4. Leukemia

E. Parasites.
   1. Amœba group
   2. Hook worm, strongyloides stercoralis, etc.

A few of the different headings will be discussed briefly, particularly in regard to treatment.

Amoebic Dysentery. Widespread interest in this condition has been evoked owing to its increased prevalence and wide geographic spread incident to the Chicago disaster. Clinically, it is characterized by a severe fulminating prostrating illness with numerous stools containing blood and mucus, and associated with severe tenesmus. The treatment has been outlined in the official Review, the *Journal of the American Medical Association*, November 18th, 1933, and consists essentially of the immediate use of Emetine hydrochloride and certain arsenical preparations. This official publication recommends the oral administration of 1½ grains of the drug twice daily for 12 days, or one grain subcutaneously each morning and one-half grain orally each evening for 12 days. Carbarsone (Lilly) is also recommended in doses of 250 mg. twice daily for 10 days. This drug is put up in gelatine capsules.

At the Mayo Clinic, Emetine is given subcutaneously in doses of one grain twice a day (a total of 6 grains) which is repeated in a week. At the same time arsenical preparations, as Treparsol or Stovarsol, are given 0.25 gms. daily for 12 days, and the course repeated after 10 days. Emetine is useful in controlling the acute phase of the disease, but the arsenicals are thought to have more curative power value.

Toxic symptoms may occur with Emetine, and must be watched for. The most common of these are exacerbation of the diarrhea, neuritis, muscular weakness, nervous prostration and myocarditis, with perhaps death from heart failure if the drug is not stopped. Arsenic poisoning occasionally occurs with the arsenicals, and in this connection it is well to keep in mind the efficacy of sodium thiosulphite as an antidote in this condition.

The dietary regime is important. A small amount of food, mostly broth, barley water, egg albumen, milk diluted with lime water, should be given at the onset, and gradually increased as the acute stage subsides by the addition of whole milk, malted milk, eggs, milk puddings, then smooth diet with very gradually increasing bulk.

* Clinical lecture read at meeting of Manitoba Medical Association, September, 1934

Many gastro-enterologists of wide experience recommend a course of Emetine therapy in cases of protracted diarrhea of unexplained etiology.

Non-Specific (Ulcerative) Colitis is characterized by painful diarrhea and stools containing blood, mucus and pus. While its course is not usually so acute as the specific types of dysentery, it is nevertheless extremely disabling and if not successfully treated often ends fatally. The diagnosis can best be made by direct examination with the sigmoidoscope.

The treatment recommended differs in various centres. In general, a bland nourishing diet is essential, combined with the use of several courses of Treparsol as outlined above. Kaolin and Kaomagna are often of benefit if given in fairly large doses, as they absorb much moisture and tend to lessen the number of stools. Sedatives are of value. Lacto-dextrin and acidophilus milk are used at times with benefit, with the object of changing the intestinal flora. Tr. Iodine is also sometimes of value. Lastly, the use of vaccines made from scrapings of the ulcers, under direct vision, are of undoubted value.

Gastrogenic. The reason for the occurrence of post-prandial diarrhea in some people who have achylia gastrica, while it does not occur in many others with the same secretory deficiency, is not well understood and leads to theorizing. However, it seems worth while to try the effect of full doses of dilute hydrochloric acid, up to one dram in a glass of water, sipped with each meal.

Neurogenic. Occurring as a result of emotional strain—fear, anxiety, worry, is occasionally met with. The removal of the exciting cause, if possible, and the use of sedatives such as Phenobarbital are of therapeutic value.

Reflex. A few cases of chronic diarrhea are found in patients who have pelvic disease, gall bladder or appendiceal infection. Thorough search for other etiological factors must be made before having recourse to surgery, although in some cases removal of the diseased organ has proved efficacious.

Allergic. A diagnosis of this type of diarrhea is aided by a history of migraine, urticaria, hayfever, or skin rashes. Patients may be able to specify certain foods which bring on an attack. Buckwheat and chocolate are common offenders. Skin-sensitization tests are of no diagnostic value.

Irritable Colon (Spastic Colon) is extremely common, and although it perhaps should not be discussed as a diarrhea, many of the sufferers from this condition have periods of frequent troublesome bowel movements, which may alternate with spells of constipation. A history of small, hard, segmented stools, hard fecal matter felt in the rectum, a tender palpable sigmoid, are points in favor of the diagnosis. Etiological factors are worry, high-tension living, prolonged use of laxatives and bran. Treatment revolves itself into soft, bland diets, containing no irritating roughages such as skins or seeds, no raw fruits or vegetables, the administration of sedatives, and perhaps olive oil retention enemas or an occasional warm saline enema at bedtime. Laxatives and bran should be forbidden.

Habit. Much has been said of the habit of constipation, and it seems that the reverse may be true.

Dietary. In these days of diet fads there are many who develop a diarrhea because of long continued use of a diet which is deficient in necessary food elements. Stools are usually more frequent in the morning. Correction of the diet deficiency is the indicated treatment.

Pancreatic Deficiency rarely causes diarrhea, even in the presence of new growth involving the head of the pancreas. When it occurs it is characterized by frequent stools which are bulky and chalk-colored from the presence of unsplit fat. Pancreatin and Bile salts are worth a trial.

Steatorrhea (non-tropical sprue) is a condition which is attracting considerable attention. The clinical features are loss of weight, anemia, malaise, a lowered blood calcium, the presence of actual or latent tetany, and a diarrhea with fat-containing stools. It is thought to be due to a failure of absorption of vitamines, calcium and fat. These patients should be given a diet high in calcium and protein, and low in fat and carbohydrate. Calcium and Viosterol given orally are also of value.

Grave's Disease. Occasionally diarrhea occurs as a symptom of this condition and its etiology is not recognized. It is sometimes quite severe and does not yield to ordinary treatment. The possibility of Grave's Disease should be constantly in mind in the consideration of a chronic diarrhea. The response to Lugol's Solution is often dramatic.

Parasites. The role of parasites in the production of diarrhea is doubtful. Many people are undoubted carriers of intestinal parasites, even of entamœba in active or cyst stage, and yet have no symptoms. However, the examination of the stools should be careful and repeated, for occasionally an unexpected clue is revealed. One rather rare case of strongyloides stercoralis came under our observation recently, and, while this infestation in the tropics is not considered pathogenic, in this case it was the exciting cause of a troublesome chronic diarrhea which yielded to treatment with thymol given in small doses and at repeated intervals.

GENERAL CONSIDERATIONS.

It is emphasized by men of wide experience in dealing with diarrheas that one of the fundamentals of treatment is a sympathetic and kindly attitude to the patient.

In the matter of dietary management, it is thought that more harm is usually done by too little food than by too much. In general, a low-

residue regime should be instituted containing 60-120 grams of meat, 15 cc. of pureed vegetables in milk soup and pureed vegetables in meat soup. Milk puddings, rusk, dry toast and cereals are added and then, slowly, stewed fruits and vegetables. Raw fruits and vegetables should be the last foods permitted.

Drug Therapy is often rather empiric. Useful drugs, however, are sedatives, Tr. Camph. Co., Tr. Iodine, Treparsol, while Kaolin preparations, yeast and vitamines, are often of value.

Lastly, in doubtful and obstinate cases, a course of Emetine therapy is a sound therapeutic measure.

*The Indications for Biopsy

By

R. W. Richardson, M.D. (Man.)

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The term biopsy means the microscopic examination of tissue removed during life. In spite of advances in biochemistry and biophysics and our hopes in serology, the morphologic method remains the most efficient in diagnosing early cancer.

The microscopic examination of tumors has been practised since the middle of the nineteenth century. It was Virchow who recognized that malignant disease started as a local condition. His microscopic studies gave us the procedure of biopsy as a guide to treatment and he advocated the removal of the lesion when it was still localized.

At the present time biopsy is the surest way of making a differential diagnosis. The clinical picture in many types of tumor is too uncertain to be relied upon and valuable time may be lost in permitting the lesion to spread while the patient is submitted to a period of observation.

Both surgery and radiation are used now in treating cancer. But before choosing the method or combination, it is necessary to know the type of cell and the degree of malignancy of the growth, therefore, biopsy is used to direct the treatment. In the same way, it is an indication of the prognosis.

The questions that arise are, what are the dangers of biopsy and when, where, and by whom *it shall* be done.

Dangers

The dangers of biopsy advanced by some are twofold. First, that incision into a malignant tumor is liable to stimulate its growth; and second, that the incision may open up channels in the way of vessels and lymphatics in which the cancer cells may disseminate to other parts.

Many experimenters have worked on this practical problem and their results have dispelled these fears. Lubarsch studied the effect of mechanical forces on the rate of growth of tumors in animals. He inoculated a series of animals with sarcoma and subjected spontaneous tumors to trauma with forceps and to the injection of homologous and foreign blood over a period of months, but was unable to see any increase in growth of the sarcoma. This answered the first objection.

The second objection was satisfactorily ruled out by the experiments of Wood. He used rats with sarcomas which normally metastasize to the lungs in a large percentage of cases. He excised portions of the sarcoma, sewed over the skin and waited for ten days before amputating the tumor—a longer period than which we wait for biopsy reports. Using controls, Wood showed that there was no increase in metastases after several months in the two series of animals.

Another type of mechanical injury, *namely*, gentle massage, was studied by Wood and Tyzzer. They gently massaged animal tumors on successive days and then amputated the tumors so as to prevent further metastases. There was a great increase in metastases after this treatment, but this is not applicable to the trauma caused by a sharp knife.

Probably the most dangerous biopsy on anatomic grounds is that of curetage of the uterus, yet here the diagnosis is unreliable on clinical examination alone and delay is more serious than the theoretical objection.

Technique

The technique in making biopsies is important. The risk is negligible when performed properly. The surgeon must have a knowledge of pathology and be able to differentiate lesions grossly or he will fail frequently in selecting the proper portion of the suspected lesion. *The specimen must be taken from the actual growth and not merely the surface. It should include a margin of normal tissue and be of sufficient size for easy section.* The lesion should be excised rather than incised, if possible.

Biopsy must be considered as a major operation in regard to strict asepsis. An infection added to a malignancy is to be dreaded and may contraindicate further treatment. Good illumination, sharp instruments and gentleness are necessary.

The electric knife has given us one of the best methods of obtaining specimens. It has the advantage of securing the section without trauma and it can be regulated so that it seals the channels by coagulation as it cuts. This eliminates the main objections to biopsy. Care must be taken that the loop does not also coagulate the tissue removed as it would then be useless for examination. If too hot, it cuts without sealing over the channels and permits bleeding. It is

*Clinical Lecture read at the Manitoba Medical College Post-Graduate Course, May, 1934.

probably better to cut the section first and afterwards coagulate the area.

Martin and Ellis have given us the method of needle puncture. A needle with syringe attached is pushed into the tumor and by suction a small plug of tissue is drawn out. This is smeared on a slide and stained. It has the advantage of avoiding infection which might result from incision and of obtaining tissue from deep seated lesions which would be followed up by radiation rather than surgery.

Hoffman's instrument is similar, except that he removes a larger section by a special trocar rather than a needle and coagulates the tract by diathermy afterwards.

The objection to these methods is that the recognition of tumor cells on a smear requires special training in pathology.

The size and location of the lesion determines the method to be used.

The pathologist should not be expected to make a diagnosis on only the microscopic picture. He should be furnished with the history and the clinical findings. Biopsy is not meant to stand alone, but is a very important part of all the evidence collected.

INDICATIONS

The use of biopsy by the physician who first sees the patient and suspects a malignant lesion must be considered. It has been stated that when a patient consults his physician for cancer, the first move on the part of the physician determines the patient's fate. We have seen that biopsy is an important factor in the diagnosis and treatment. In larger centers where the laboratory services and facilities for all forms of treatment are adequate, the problem is easily solved. But what procedure should be followed by the isolated practitioner? He may see many lesions of which he would like a positive diagnosis, but economic reasons prevent every patient being sent to a larger center on the slightest suspicion.

In some organs a simple biopsy can be made by the practitioner and the tissue sent in to the laboratory. Any danger involved is undoubtedly less than that caused by delay. In other organs, it is inadvisable and the patient should not be subjected to biopsy unless the one who does it is capable of going ahead with treatment at once.

Let us consider the indications for biopsy in some of the common sites.

The skin presents two types of malignancy, *viz.*, the basal cell and the squamous cell carcinoma. The former is very radiosensitive and requires only small doses of radiation locally, while the latter may require large doses. Here it is important to know definitely the type present, since the treatment depends upon it, and biopsy is necessary. In small lesions the isolated practitioner could remove all of the lesion by wide excision. If it proves to be rodent ulcer, the patient would not require any further treatment. Should it be squamous cell carcinoma, additional treatment in the form of radiation must be given.

Small sores on the lip may be excised in toto under local anæsthesia and sent in for examination. It is much more advisable to do this than to practice watchful waiting for a period of weeks. If done properly, both biopsy and treatment are instituted at once. Treatment of larger lesions of the lip *depends* on their grade of malignancy and may require both wide excision and radiation. It is advisable to have the patient where this can be proceeded with at once.

In the mouth, biopsy methods require considerable experience in order that the proper tissue be removed. Due to the vascularity, the electric knife is the instrument of choice. Radium is usually used in treating malignancy of the mouth and biopsy here by the practitioner is inadvisable. Pfahler has pointed out that patients with suspicious lesions of the mouth should have a serological test as well as biopsy for many cancers are grafted on old syphilitic lesions.

Glands of the neck present difficulties in differential diagnosis. Here the method of Martin and Ellis is useful but requires special training. In this region no incision for biopsy is justified unless one is prepared to carry out surgical or radiation treatment at the time. Histologic examination of lymph glands has often led to a diagnosis of primary tumors in other organs before they were suspected.

Much work has been done in the relation of biopsy in suspected cancer of the breast. Bloodgood has shown, that the removal of malignant tumors from the breast, followed by closure of the wound without chemical or thermal cauterization, and permitting an interval of from two weeks to two months before complete removal of the breast, results in a reduction of the five year cures. This occurs whether or not the lymph glands were involved. Bloodgood saw no difference in five year cures with biopsy, if chemical or thermal cauterization was carried out.

Clinical diagnosis cannot always be relied upon in cancer of the breast. Indeed, statistics show that clinical symptoms alone lead to a correct diagnosis in only two thirds of the cases.

Some believe that the gross appearance is more reliable than microscopic examination, yet there are many breasts which in the gross, show chronic cystic mastitis, but when many sections are made, a small malignant lesion may be found. These small nodules might easily be missed in the rapid frozen section method, especially in a breast riddled with chronic mastitis.

When the question arises between these two conditions, if any incision is to be made, it is best to remove the whole breast for examination.

A solitary lump or nodule calls for biopsy more than chronic cystic mastitis. Also, any breast having a discharge from the nipple requires wide excision of the mass or removal of the whole organ for microscopic study.

It is evident then, that biopsy should not be done on the breast unless the operator is prepared to do the radical operation at the time. In chronic cystic mastitis, the whole organ should be amputated, if the gross appearance or rapid section still leaves the diagnosis doubtful. If solitary nodules are removed, the wound should be cauterized by thermal or chemical means.

It was in gynæcology that biopsy was first developed in its modern form. In the cervix and uterus, we depend on it to show the very early cases of cancer. The time factor in making a diagnosis is most important. It would not seem justifiable without biopsy to assume that a lesion was benign and postpone treatment, or that it was malignant and subject a patient to radical operations, or expensive radiotherapy.

In the cervix, it is a simple matter to remove a specimen for section. Unless the practitioner is very familiar with the gross pathology of this organ, he would be well advised to remove a portion at once rather than to treat it as a simple erosion.

Curetage of the uterus as a means of biopsy is the only certain way of diagnosing malignancy. It has theoretical dangers, but they are not as real as the danger of procrastination in malignant disease, nor the high mortality of a radical operation when only a benign lesion exists.

Tumors of bone should not be subjected to biopsy unless x-ray films and therapeutic doses of radiation fail to give positive findings.

SUMMARY

Every sore or lump not responding to ordinary non corrosive treatment requires biopsy.

Excise rather than incise.

It should not be done, if operative mortality forbids further treatment.

It is without danger, if done properly.

There is less risk in doing a biopsy than in waiting.

Editorial and Special Articles

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Editorial

Preliminary Report on "An Attempt to Inhibit the Development of Tar-Carcinoma in Mice"

In the November number of the *Canadian Medical Association Journal*, J. R. Davidson, M.A., M.D., C.M., F.R.C.P. (C.), has published a preliminary note on an attempt to inhibit the development of tar-carcinoma in mice. It is apparently essentially a study of the results of tarring two related groups of mice, one of which was fed a diet low in vitamin "E" and the other a diet of high vitamin "E" content. It appears that the group which was fed the diet with the high vitamin "E" content tended to develop tar-carcinoma later and the instance of tar-carcinoma seemed to lessen. The article published in the *Canadian Medical Association Journal* is merely a preliminary note, and the publication of details of the experiment will be awaited with interest. It is reported that the results of these experiments will be checked in another series of cases by the Medical Research Committee of the Faculty of Medicine of the University of Manitoba. Dr. Davidson was formerly Assistant Professor of Medicine in the University of Manitoba, and Physician to the Winnipeg General Hospital, but has been retired from these positions for a few years.

Report of Committee of the Winnipeg Medical Society Appointed to Investigate Medical Charities of the City of Winnipeg, 1925

In view of the fact that a report has recently been made on certain charitable organizations in Winnipeg, it is interesting to refer to the result of an investigation made by a committee of the Winnipeg Medical Society into medical charities in Winnipeg in 1925. In the autumn of 1924, under authority of the Winnipeg Medical Society, a committee was appointed to investigate medical charities of the City of Winnipeg. The Society made a grant of $1,000.00 in order to enable the committee to secure the services of Miss A. B. Baird, a trained social worker, for the investigation. Under the direction of the committee, Miss Baird spent five months gathering and analyzing data, and numerous meetings of the committee were held during the course of a year. The scope of the inquiry was confined to:

1. Investigation of Winnipeg organizations in which the dispensing of free medical aid to the needy is predominant.
2. Measures of state medicine now existent.
3. Relation of the medical profession to the public.

The collection of one hundred and fifty documents was made during the course of the investigation.

It was found that there were some seventy charities existent in Winnipeg, of which twenty-three made a direct demand on free medical services from members of the profession, and twenty-four made an indirect demand through clinics and out-patient departments. Nine organizations were listed under the heading of forms of State Medicine, which included municipal hospitals, health departments, etc. Two nursing orders or missions made some demand on free medical services from the profession.

The report when published ran to some thirty pages and set out the results of the investigation of these different organizations, and included the investigation of certain examples of cases which were considered suitable or unsuitable for medical charities. The report ended with conclusions and recommendations, as follows:

Conclusions.

1. It would seem that there is an excessive number of charitable organizations in Winnipeg, in proportion to the population, and also that there is lack of efficient co-operation between these organizations.
2. Investigation of charities involves the economic aspect. The committee does not feel competent to deal with this phase, but considers it a matter for an expert economist.
3. The usual practice of medical men, here as elsewhere, has been to give their services gratuitously to indigent patients. As donors of this charity

they have the right to be assured of the bona fides of the patient. The manner of investigation into the financial status of applicants for free treatment, must therefore be approved by them. The charitable agencies are at present individually rsponsible for investigation, but they have neither suitable organization nor the funds to carry on such investigation efficiently.

4. Assuming health to be at least as important to a people as education, the advisability of some form of state medicine, such as health insurance should be considered, the medical profession under present conditions is carrying voluntarily a heavy load in assuming the free medical care of the poor. The government grants no privileges, such as relief of taxation to medical men in settlement of its obligations in this matter.
5. Abuse of charity is undesirable. It tends to pauperize the recipient, lowers his self-respect and throws an unfair burden upon the city. The government should not be regarded as a sort of organized charity. In the main the rights of a citizen should be proportionate to his obligations.
6. In hospitals, the spread is too great between the public ward and private and semi-private rates. It is advisable that some plan be devised which will enable the paying patient of moderate means to receive adequate care at a cost which he can bear.
7. A review of the Nationality tables should give, in conjunction with further available statistics, a guide for selection of immigrants. Certain groups are evidently undesirable.

Recommendations.

1. Establishment in the city of a central bureau of investigation for applicants for all charity.
2. Questionnaire re. financial status to be signed by such applicants. Amendment to the Hospital Act, so that proceedings could be taken in case of fraud.
3. Thorough investigation of the charity situation in Winnipeg, by qualified experts in economics.
4. More attention should be paid by the medical profession to the question of state medicine.
5. All charities making a direct demand on free medical service should obtain same by agreement with the Winnipeg Medical Society.

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It is reported that the results of this investigation were submitted to the then chairman of the Federated Budget Board, but the report was rejected without any reason being given, and the net result was that no action was ever taken or any further investigation instituted by the responsible authorities. The essential features of this report of the Winnipeg Medical Society are that it was recommended that there should be a central bureau of registration for applicants for all charity, in order to prevent overlapping of services and waste of public funds. Similar recommendations were made in the recent report of Miss Charlotte Whitton, O.B.E. In view of the fact that the recommendations resulting from both these investigations correspond in essentials, it is interesting to note that the report of the Winnipeg Medical Society was made ten years ago at its own expense, and was rejected by the responsible authorities. C. W. MACC.

Post Graduate Instruction

Faculty of Medicine
University of Manitoba

On several occasions during the past year an intimation has been given that the Faculty of Medicine of the University of Manitoba, in the belief that its function did not relate entirely to undergraduate training, would undertake a programme of post graduate or continuation work designed to be of value to the practicing physician of Western Canada.

The successful "refresher" course of last May was one of the steps in this programme. Throughout the year a number of short practical articles on commonly encountered clinical conditions, have been supplied to the *Review* by members of the Faculty and attention has been drawn to worth while contributions in current medical journals.

An active committee under the chairmanship of Dr. P. H. T. Thorlakson has well advanced plans for other contributions in the worth while field. Arrangements are practically complete for a twelve weeks course in "Anatomy applied to Medicine and Surgery" to be given by Alex. Gibson, F.R.C.S. (Eng.), Associate Professor of Surgery and Lecturer in Applied Anatomy in the Faculty. The sessions will be held weekly in the evening and the registration limited to 30. It is planned to have this course commence early in January.

In February at Bonspiel time a three day course in "Cardiovascular Diseases" will be arranged. This will be an intensive presentation in which a number of instructors will take part.

Next autumn, a week's "refresher course" will be put on. In all probability a portion of the time will be set aside for work of special interest and value to Medical Health Officers. The Provincial Department of Health are co-operating in this feature.

Other courses are in contemplation. We are anxious that they should be of real value and shall do our best to make them so. Suggestions from members of the profession are solicited and will be greatly appreciated. They may be addressed to the Secretary of the Post Graduate Committee, L. G. Bell, M.R.C.P. (Lond.), 216 Medical Arts Bldg., or to myself at the Medical College, cor. Bannatyne and Emily, Winnipeg.

A. T. MATHERS, F.R.C.P.(C.)
Dean, Faculty of Medicine
University of Manitoba.

Report from the Committee on Sociology of the Manitoba Medical Association

The Problem of the Indigent Patient in Rural Districts

At the request of rural practitioners, a plan was brought forward by the Committee on Sociology to assist the country doctor to obtain payment for attendance on indigent persons. A questionnaire was sent to all practitioners in the spring. A schedule of charges, methods of operation, etc., were subsequently forwarded to all doctors, with the request that they approach their municipal councils and report progress. As far as can be learned, in some municipalities satisfactory arrangements were already in existence; in others municipal councils accepted the proposed arrangements; but a number of doctors reported that, in a large percentage of cases, municipal councils either refused to consider the proposition or deferred action on it from month to month. When this situation was discussed, many rural practitioners expressed the opinion that it was not wise to force the issue at the present time. This viewpoint was clearly demonstrated at the recent session of the Executive of the Manitoba Medical Association, which is fully reported on page 16 of the November issue of the *Manitoba Medical Association Review*. In no case was the Committee on Sociology requested to take steps to press the practitioner's demands, and the Committee declines to take part in any argument or negotiations between doctor and municipal council, except by special request. The Committee is still active and prepared, as in the past, to give advice or prompt assistance to any practitioner, but only at his own invitation.

A Problem Arising in Connection With the Winnipeg Scheme

A problem of interest to all practitioners doing relief work was recently presented to the Medical Advisory Board. In an acute case, the patient or the relatives declined to have the consultant (a specialist in the particular condition) recommended by their family doctor. They called in two practitioners, telling them that they would be responsible for the fees. The first one was paid; the second has not yet received payment. The Medical Advisory Board does not raise any objection to such a proceeding, but would ask for the assistance and co-operation of the profession. As can be learned from the press, from time to time people on relief are punished for defrauding the City of Winnipeg by concealing assets or sources of income. The assistance of citizens will do more to stop this than anything else. If you receive a fee from a patient on relief, will you be good enough to notify Dr. Harvey, who will arrange for an enquiry as to the source. If, as frequently happens, the fee is furnished by some sympathetic friend or relative, no objections will be raised by the Unemployed Relief Department.

*The Problem of Health Insurance

By

Hugh H. Wolfenden, F.I.A., F.A.S., F.S.S.

Consulting Actuary and Statistician, Toronto

At the commencement of any reasoned discussion of "The Problem of Health Insurance" it is essential to understand clearly the manner in which the economic device of insurance has been developed to its present state of widespread utility. Although any account of that development which I can give you today must of necessity be condensed — so that I must refer you to the extensive documentary evidence on the subject for anything in the nature of a detailed treatment — it will, I think, assist towards a sound comprehension of the subject if we consider very briefly, first of all, the growth of the insurance principle, and its capacities and limitations, as well as the part which the actuarial profession must take in the formulation of the statistical bases of insurance plans, and in their financial administration and control.

The History and Functions of the Actuarial Profession

The earliest use of a procedure analogous in principle to that of modern insurance is to be found in the desire for protection against the hazards of the sea. In later years, when life insurance was first instituted, it was necessary, of course, to maintain a register of the risks involved; and in the old Equitable Society, which was founded in London over 170 years ago, the official who was charged with this duty was called the "actuary"—a derivation from the "actuarius" who had been known, from the time when the "acta" of the Roman Senate were recorded, as a registrar of a court of law. From this mere registration of the risks carried on the books of the insuring institution, it soon became necessary for the actuary to undertake the statistical tabulations and analyses of the particulars thus entered. The fact, moreover, that level premiums are customarily charged, during many years of an individual's existence, for insurance against the risk of death which steadily increases year by year, early gave rise to those very special processes of statistical and mathematical procedure which now constitute, in a highly developed form, the technique of the actuarial profession. Concurrently with this evolution of the actuary's position with respect to life insurance, it was natural for him to undertake, for similar reasons and by comparable methods, the calculations required in connection with the other contingencies of human life—*namely*, birth, marriage, sickness, accident, disability, and now, unemployment—so that today the actuary may be described as the professional man whose duty it is to deal with all the statistical, mathematical, and financial

* An address before the Ontario Hospital Association, Toronto, on October 25, 1934. Published by kind permission of Mr. Wolfenden and the Ontario Hospital Association.

calculations which form the basis of any schemes involving the contingencies of human life. As an illustration of that broad description, I might point out that the computation of a rate of premium or contribution for protection against the future hazards of sickness or death clearly requires the estimation of the probabilities of the occurrence of those contingencies for successive years of age, so that many of the actuary's chief processes involve the use of the mathematical theory of probability, and the practical association of such probabilities with the rate of interest to be anticipated over many years.

THE CAPACITIES AND LIMITATIONS OF "INSURANCE"

In the gradual developments of those methods, both the actuaries — as the technical advisors — and the administrators of insurance plans have, through long experience, recognized that certain functions can be performed in the name of "insurance," and that some can not. There is, today, a tendency in some quarters to suppose that the protection of "insurance" can be obtained by some magical process — which, however, like all magical processes, remains wholly unexplained. Because the financial and economic consequences of death can be dealt with successfully by life insurance, and because losses to property from fire or other modes of damage can be spread over the members of a group by the payment of premiums into an "insurance" fund, it is—especially in these days of depression—frequently assumed that the consequence of every other type of hazard, under any and all conditions, can be similarly circumvented. Unfortunately, however, this is not true. It is to be remembered that although the evidence of damage caused by fire is unmistakable, so that the actual occurrence of the contingency (in that case fire) is not generally in doubt, and although a person ordinarily is clearly either alive or dead, the proof of alleged sickness, or disability, or unemployment is often not by any means as definite. Even in dealing with such occurrences as fire or death, moreover, it is essential to protect the insured group against unjust and excessive claims from arson, suicide, or misrepresentations contrary to the letter and spirit of the original agreements; and it has therefore become essential to recognize that every insurance plan must be surrounded by conditions and safeguards to prevent undue claims resulting from misinterpretation and unethical behaviour.

A very wide experience has now been accumulated, extending over many years, with respect to all those types of insurance which have proved to be workable. Many other impracticable forms of "insurance," however, have been tried during the course of history; and they have failed, either because they were fundamentally unsound, or because they were improperly administered or subjected to unethical claims from those whom they were intended to protect. So extensive has that experience been that it may be stated that no system of so-called "insurance" can be expected to succeed if it is founded, as is today suggested in some quarters, on an ill-defined concept of the term as of some magical method which will "make secure," under all conceivable circumstances, regardless of conditions or control, and on a nebulous definition of "insurability" based solely on a desire for protection. "Insurance" must of necessity remain an economic device for alleviating the burdens arising from the occurrence of the contingency against which the insurance is effected, on conditions which clearly define "insurability," which maintain a definite and measurable relation between the contributions to be paid and the benefits to be derived, and under circumstances which permit proper administrative and financial control, both of those who are admitted as members, and of those members who claim benefits under the scheme. These requirements obviously demand, also, the prescription of certain contributions and benefits, which can be predicted within the limits of variation indicated by the laws of probability, while likewise the proofs of claim must be clearly drawn and capable of strict enforcement. Any serious departure from these principles can result only in unforeseen and uncontrollable costs, and in attempts to shift those costs to other groups of the community, or ultimately to the Government, with a consequently lessened sense of personal responsibility.

"Insurance", in many fields, has thus proceeded —because it could proceed successfully in no other way—on the basis of certain fundamental principles and practical devices. Its development is long past the stage where it is either necessary or desirable to try experiments with those fundamental principles. Its growth has not been in any way spasmodic; the realization of its desirability as a form of economic protection has long been known — that realization has not been the outcome of depressed conditions; and its continued sound application, in whatever circumstances its use may be suggested, can be assured only if its well-known principles and limitations are admitted. It is not a question of experimenting with a little known device — nor are the possible fields of its application unknown or unsurveyed. And this is particularly true of health insurance, for the history of insurance of that type extends over a long time, and is to be found in many countries.

THE DEVELOPMENT OF VOLUNTARY SICKNESS INSURANCE

The earliest records of insurance against financial loss resulting from sickness are to be found in Europe centuries ago, and voluntary societies have been encouraged and controlled by legislation for upwards of 140 years. In Great Britain, for example, a very extensive system of Friendly Societies has been developed, of which the chief characteristics are their wholly voluntary nature, their decentralized administration, and their ceremonial features and special regulations which were drawn with the particular objects of assuring ethical behaviour in the filing of claims and preventing malingering by mutual supervision, or fines, or even ultimate expulsion.

A great body of data has been accumulated from the experiences of these societies; and its systematic tabulation and analysis has now placed the actuary in a position to embark upon the preparation of the necessary estimates for any scheme of health insurance with much valuable material and yet with a very salutary degree of caution. By such statistics the rate of sickness has been shown to depend upon a great variety of factors, of which the most significant are age, sex, marital condition, occupation, personal and family history, locality of domicile, and economic status. Moreover, under any plans which offer either benefits in cash or benefits in kind, the rate of sickness claims — which is to be distinguished carefully from the rate of sickness itself—is found also to depend markedly upon several other factors which reflect the claimant's psychology and ethics. Those factors are, firstly, the "waiting period", that is to say, the number of days of sickness which must elapse before payment of the claim will commence; secondly, the "benefit period", *namely*, the length of time for which benefits will be paid; thirdly, the so-called "periods of attack", being the division of the total benefit period into such portions as the "first three months", "second three months", "second six months", "second twelve months", and "after two years" of claim; fourthly, the relation of the character and amount of the benefit during such periods to the normal earnings of the claimant prior to occurrence of the sickness; and fifthly, the size of the group or organization through which the payment of the benefits is obtained, and the facilities for any regulations governing the filing of claims; their medical certification, and their final scrutiny.

Sickness claims, under any plan which offers benefits in cash or in kind, are, indeed, so vitally dependent on these various factors that their cost will be found to bear very little relation to the supposed costs of sickness when no benefits can be obtained. It is therefore of the utmost importance that such estimates should be prepared by those who have at their command not only all the appropriate statistics on such questions, but also the technical knowledge and practical business judgment necessary for the evolution of workable schemes. There is, unfortunately, no opportunity in the short time available for this address to elaborate upon these statements, or to set before you any of the abundant statistical and other evidence upon which they are founded. It will, perhaps, be sufficient if I merely draw your attention to the fact that in Great Britain, where the National Health Insurance Act of 1911 was deliberately founded upon the extensive Friendly Society system, which had then existed for many years and already covered over 50% of those to be brought under the Act, the decentralized control and constant actuarial supervision of the scheme has — whatever else may be said for or against the plan — at least secured a reasonable financial experience, with actual distributable surpluses in certain well administered "Approved Societies". This result has been in sharp contrast with that of unemployment insurance, which soon became subjected to such pressure from interested economic and political groups that its insolvency at one time threatened even the credit of the National Exchequer.

The British and European Governmental Health Insurance Plans

Many valuable lessons may be learned from the characteristics and experiences of the British and European plans of compulsory, or partly compulsory, health insurance. It may be noted that the importance of strict decentralized control is recognized; generally the plans cover only employees earning wages below a certain level; contributions are divided, in proportions which in fact are arbitrary, between employers, employees, and sometimes the Government; and the benefits include cash payments, after a waiting period, during temporary sickness (for a period such as 26 weeks or a year) and thereafter at a lower rate of payment during permanent disablement, with benefits in kind including medical care, drugs, maternity benefits, and sometimes dental treatment and special arrangements for hospitalization. The plans thus cover only special classes of employees; the employers and the taxpayers are made to bear a considerable proportion of the total cost; and preventive measures have had little place in the scheme, while their effects upon the rates of sickness and mortality have been negligible.

Some of the features of the plans, however, have been seriously misinterpreted. Particularly is this so with regard to the inspection of the medical certificates which must form the basis of every claim. The view has been advanced in certain quarters on this Continent that such inspections constitute an unwarranted interference with the privileges and confidential position of the medical practitioners; and this suggestion has been fomented in some publications to such a point that sometimes it is laid down as axiomatic that no insurance organization or manager should be permitted to take any part in the initiation or administration of any scheme. The method of avoiding this elleged interference is apparently visualized as a State fund or funds, or some form of organization founded upon local "boards" or "committees". It must be pointed out, however, that such devices cannot possibly remove the essential requirements of inspection and control, so that even under an organization of that kind some person in the position of a manager must be empowered to scrutinize the medical certificates in order to make sure that the claims based upon them fall within the terms and conditions of the plan. The checking of the practitioners' certificates should not be held to imply distrust in their reliability. The rejection of a certification as the basis of a claim under a benefit scheme does not at all necessarily dispute the accuracy or honesty of the certification itself in the sense of its being merely evidence of the existence of a certain type of illness. The scrutiny of certi-

fications is simply a necessary part of ordinarily prudent business management, with the objects of facilitating payments to those who are entitled to them, and, for the protection of those who are entitled, of excluding those who are not.

THE DISCUSSION OF HEALTH INSURANCE IN CANADA

The recent marked revival of interest in health insurance in this country can, of course, be traced to obvious economic causes. They are quite different from the political reasons which impelled first Germany, and later England, to lead the way in developing a system of State-aided sickness benefits to wage-earners. Because these systems make no attempt to deal with sickness amongst other earning or non-earning groups, there is some ground for the belief that careful investigation, and deliberate rather than precipitate action, might lead here to the evolution of a scheme or schemes which could avoid the restricted character of the European methods, and might incorporate health "insurance", in some practicable form, in a more comprehensive and effective programme of public health control. If this should be the course of action, however, it must be realized that a very great deal more study than has yet been given to the question should be devoted to the facts of the existing situation, and to the implications of any scheme which may be proposed in a time of depression such as that through which we are now passing. While it is true that one of the great difficulties of securing adequate medical and dental care, as well as hospitalization, drugs, etc., is often not so much the average per annum cost of sickness as its possible formidable proportions in the event of serious illness, and while it is equally true that the costs at present are unfairly apportioned between the various income groups of the community, it is also to be remembered that any method, whether it is "insurance" or not, which seeks to regularize payments must also regularize services. In any such regimentation there must be confidence and co-operation not only amongst all the people to be served, both when they are ill and when they are well, but also between those persons and the doctors, dentists, hospitals, nurses, druggists, etc., who provide the services. Furthermore, if such a scheme be introduced as the result of representations from interested groups, no group under such circumstances could complain against prescribed contributions—if an "insurance" plan is introduced—prescribed fees and charges, and a considerable measure of bureaucratic supervision of certifications, claims, services, and payments. It may perhaps be doubted whether the adoption of such regularized methods would ultimately improve the efficiency of the general health services, and whether uniformity on some arbitrary scale is the solution for high costs which have arisen largely from scientific discoveries and new methods of treatment and cure. Many estimates of the cost of regularized medical practice do not make sufficient allowances for these features—nor are their effects upon the type of service always realized.

CONCLUSION

In this address I have attempted to set forth, for your serious consideration, the underlying principles and characteristics of those general plans which today are spoken of as "Health Insurance". While the designation is sometimes changed to "regularized medical practice", or to "subsidized medical practice", or even to "state medicine", it is clear, in my opinion, that neither euphemisms, nor mere phrases, nor emotional appeals can change either fundamental principles or fundamental human motives. If we are not willing to believe this now, we shall learn it later. The whole history of insurance abounds in illustrations—all of them costly, and many of them disastrous — of the consequences of disregarding the precepts of sound insurance administration. If any plan is to be expected to improve the existing economic state of medical practice and hospital management, it should therefore, it seems to me, be founded upon a recognition of this basic fact. It should also be examined, more carefully than has yet been done, from the viewpoint of determining the functions of such a plan in relation to a workable conception—which is not necessarily an idealistic conception—of our social, economic, and even political responsibilities. There is no opportunity today to elaborate upon the significance of this relationship. Perhaps, however, I may be permitted to refer to some observations in an address which I was privileged to give this year before the Ontario Health Officers' Association, which is printed in the July, 1934, number of the "Canadian Public Health Journal," and has been reprinted in the "Manitoba Medical Association Review" for September. In conclusion, I should also like again to offer to any interested group, such as your own, the hearty co-operation of the actuarial profession in the evolution of plans for facilitating the absorption of the costs of medical care by any of the methods which broadly may be included under the designation of plans of sound and workable "insurance".

Medical Library University of Manitoba

A summary of the contents of some of the journals available for practitioners, submitted by the Faculty of Medicine of the University of Manitoba. Compiled by T. E. HOLLAND, B.Sc., M.D. (Man.), F.R.C.S. (Edin.).

"THE CANADIAN MEDICAL ASSOCIATION JOURNAL"—November, 1934.

"The Histological Variations in Animal Thyroids in Western Canada"—by A. Clifford Abbott, F.R.C.S. (Ed.), and James Prendergast, M.D., Winnipeg.

—A report of the study of the glands of cows, calves, sheep, swine, mink, fox and horses, illustrating by histological pictures the variations in each class.

"The Surgical Treatment of Facial Palsy by an Autoplastic Nerve Graft"—by Joseph A. Sullivan, M.B., Toronto.

—Results of autoplastic nerve grafting are given. The anterior branch of the lateral femoral cutaneous nerve is most often used. Return of function is noted in two months and progress for another six months.

"Acute Empyema in Infants and Children"—by R. R. Fitzgerald, F.R.C.S. (Eng.), Montreal.

"An Attempt to Inhibit the Development of Tar-Carcinoma in Mice." (Preliminary Note)—by J. R. Davidson, M.D., Winnipeg.

—Dr. Davidson has developed a stock of mice of high susceptibility to Tar-Carcinoma. Using two groups of similar parentage and characteristics, he has shown a definitely lower incidence of tar papillomata and carcinoma in a group fed on a high Vitamin E diet, as compared with a group fed on an ordinary diet. Those on the high Vitamin E diet showed almost normal fertility, while there was marked depression or complete absence of fertility in tarred groups on normal diet. Dr. Davidson is of the opinion that Vitamin E exerts an inhibition on growth and development of Tar-Carcinoma. His further work on this subject is awaited with interest.

"The Value of Glucose in Surgical and Medical Conditions and Its Mode of Administration"—by D. S. Macnab, M.D., F.A.C.S., and E. P. Scarlett, M.B., F.R.C.P.(C.), Calgary.

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"THE PRACTITIONER"—November, 1934.

This number contains a symposium on "Affections of the Liver" composed of the following articles:

"On Being Liverish"—by Arthur F. Hurst, F.R.C.P., Guy's Hospital.

"Liver Function Tests"—by Charles Newman, F.R.C.P., King's College Hospital.

"The Surgical Treatment of Some Biliary and Hepatic Diseases"–by A. E. Mortimer Woolf, F.R.C.S., Queen Mary's Hospital, London.

"Jaundice"—by A. C. Hampson, F.R.C.P., Guy's Hospital.

The following articles are found in the same issue:

"A New Method of Treating Cœliac Disease"—by Eric Pritchard, F.R.C.P.

"Difficulties in the Diagnosis of Diabetes Mellitus"—by Otto Leyton, F.R.C.P., London Hospital.

"Abdominal Examination in Pregnancy"—by H. E. Chisholm, F.R.C.S. (Ed.), Dundee.

"EDINBURGH MEDICAL JOURNAL"—November, 1934.

"Some Problems of Dermatitis"—by G. H. Percival, F.R.C.P.E.

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"THE MEDICAL JOURNAL OF AUSTRALIA"—October 13th, 1934.

"The Treatment of Gonorrhoea in the Female"—by K. S. MacArthur Brown, M.B., Paramatta, N.S.W.

—Careful attention to detail is given.

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"THE CLINICAL JOURNAL"—November, 1934.

"Fractures Near the Ankle-Joint"—by C. Lambrinudi, F.R.C.S., Guy's Hospital.

—A good article, very well illustrated by drawings.

"The Treatment of the Deficiency Anæmias"—by John F. Wilkinson, M.D., M.R.C.P.

"The Functional Disorders of the Colon"—by T. L. Hardy, M.D., M.R.C.P., Birmingham.

—The first part of this lecture appeared in the October issue.

"The Diagnosis of Acute Perforation of Gastric and Duodenal Ulcer"—by R. L. Holt, F.R.C.S., Manchester.

"Hæmaturia"—by Alex. E. Roche, F.R.C.S., London.

"The Treatment of Chronic Catarrhal Otitis Media and Dry Suppurative Otitis Media"—by W. M. Mollison, F.R.C.S., Guy's Hospital.

"Infections of the Urinary Tract and the Ketogenic Diet"—by Hugh Donovan, F.R.C.S., Birmingham.

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"BRITISH MEDICAL JOURNAL"—October 27th, 1934.

"Bad Surgical Risks"—by G. Gordon Taylor, F.R.C.S., Middlesex Hospital.

—An excellent article delivered before the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

"Retroversion of the Uterus"—by S. Gordon Luker, F.C.O.G., Bournemouth.

"Recurrent Vomiting Attacks in Childhood, with Special Reference to Allergic Factors"—by K. H. Tallerman, M.D., M.R.C.P., London.

"New Cases of War-Blindness Due to Mustard Gas"—by Reginald E. Bickerton, St. Dunstan's.

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"BRITISH MEDICAL JOURNAL"—November 3rd, 1934.

"Cancer of the Oesophagous"—by H. S. Souttar, F.R.C.S., Surgeon to the London Hospital.

"Adolescent and Senile Kyphosis"—by C. Lambrinudi, F.R.C.S., Guy's Hospital.

—Well illustrated by photographs.

Department of Health and Public Welfare

NEWS ITEMS

TREND OF DIPHTHERIA

During recent years many writers have reported local epidemics of a severe type of diphtheria relatively refractory to the serum, but the League of Nations' Epidemiological report of March–April, 1934, states: "An examination of the total figures for the various countries does not discover any general tendency toward an aggravation of the disease.

"The considerable drop in diphtheria morbidity and mortality between 1890 and 1920 and the falling off of the case fatality rate since then, as well as the occurrence of numerous extremely mild cases, has done much to attenuate the social importance of the disease and consequently less attention is paid to the trend of its morbidity.

"Summing up it is observed that diphtheria morbidity has been on the increase from 1926 to 1930 in most European and extra European countries. It is impossible, however, to say whether this represents a significant trend in the curve of diphtheria or merely a cyclic variation such as would be brought about by the usual course of the infection and changes in proportion of susceptible individuals in the population.

"The countries in which the rate of increase has been particularly high are, in the first place, those of Central and Eastern Europe, England and France until 1930, Italy, Japan and Australia. The parallel trend of the curves of rate of increase has been particularly remarkable for the cases of diphtheria reported in Austria, Hungary and Czechoslovakia on the one hand, and in Germany, Poland and Roumania on the other.

"In England morbidity increased regularly until 1930, in which year 74,043 cases were recorded. The following year a fall of nearly 25.5 per cent. occurred, the annual number of cases reported from 1931 to 1933 being successively 50,290, 43,399 and 47,454.

"In Scotland a similar movement of morbidity took place, although a decline in mortality began as early as 1928.

"The trend of diphtheria morbidity has been similar in France and Italy; the number of cases rose from 11,033 in 1923 to 23,744 in 1930 in France, and from 11,183 to 30,050 in Italy.

"After the rapid increase in morbidity in Germany from 1926 to 1930 the number of cases fell from 70,552 in 1930 to 57,822 in 1931, but rose again to 64,138 in 1932 and 74,559 in 1933, the last figure representing a morbidity rate of 120 per 100,000 inhabitants.

"A cyclic increase in diphtheria has also been observed in the Netherlands and Belgium, the number of cases rising from 3,620 in 1927 to 7,450 in 1930 in the former country, and from 1,033 to 2,848 in the latter. During two years, 1931 to 1933, diphtheria morbidity has remained at a relatively high level in these two countries.

"The same cyclic movement with a high level in 1923, a minimum incidence towards 1927-28, increase until 1930 and then rapid decline, has been observed in the Scandinavian countries, with the exception of Denmark, where the disease remained at a remarkably steady level from 1923 to 1930.

"In the countries of Central and Eastern Europe there has been an almost continuous increase of diphtheria morbidity and mortality; diphtheria is still responsible for an appreciable proportion of child deaths in these countries where the birth rate is relatively high.

"Diphtheria morbidity has been continually on the increase in Czechoslovakia since 1922.

"During 1932 the morbidity rate was 282 per 100,000 in Bohemia, 214 in Moravia-Silesia, 103 in Slovakia and 59 in Sub-Carpathian Russia.

"Where the population of Czechoslovakia is dense, very urbanized and possesses good communications, the disease prevails in the endemic state, while in Slovakia and Sub-Carpathian Russia there are local epidemics scattered throughout the rural districts; these epidemics are made possible at the beginning by the great number of susceptible individuals, but they soon die out owing to lack of fresh material."

On the other hand, "if the period from 1923 to 1933 is considered, it will be observed that a regular decline in the incidence of diphtheria has taken place in the United States, Denmark, Sweden and New Zealand. A similar tendency has also been observed in Canada since 1929, in England, Scotland and the Netherlands since 1930, and in Greece, Spain and Roumania since 1931.

"In the United States of America the number of cases reported in the 48 states declined from 97,811 in 1925 to 48,613 in 1933. The apparent case fatality is remarkably low and steady in the United States."

Although Canada has shown a steady decline in diphtheria incidence since 1929, and the Province of Manitoba has shown a decrease in morbidity from a high of 2,015 cases in 1923 to 405 cases in 1933, during the years 1932-33 this decline has not kept pace with that in the other provinces, the cases for these two years, 401 and 405 respectively, being equivalent to a rate of about 56 per 100,000 of the population, which is the highest of any of the provinces of Canada.

In Manitoba the disease remains endemic in the larger urbanized centres, and with local epidemics in the rural areas.

In the same issue of the League of Nations' epidemiological report the opinion is expressed that "the massive drop from 1890 to 1920 of the number of recorded cases in most countries apparently resulted in the morbidity from diphtheria reaching the lowest level then possible to attain with only 'social causes', both demographin and biological, at work; to reach a still lower level active immunization had to be resorted to. The trend of the disease in the United States and the Scandinavian countries where anti-diphtheritic vaccination is practiced on a large scale seems to confirm this idea."

Referring to the amount of active immunization necessary to affect the morbidity curve, reference is made to the work of E. S. Godfrey in the *American Journal of Public Health,* 22, 237-256 (1932), which appears to have been corroborated by other workers in American cities: that the morbidity curve is not clearly and permanently affected until the proportion of immunized individuals reaches 60 or 70 per cent. of the children of school age, as well as 30 per cent. of those of pre-school age.

Every little while there occurs in inoculated individuals (the term inoculated is used because there is usually no proof that these persons have been immunized by the antigenic material) throat conditions diagnosed as diphtheria. Their occurrence is rather disconcerting and if without further investigation each case was accepted as true clinical diphtheria our ideas might be inclined away from artificial immunization and the procedure allowed to fall into disrepute in some quarters.

The Greenwich Hospital School in England was faced with such a situation after undertaking inoculations against diphtheria early in 1929. At the time it was not considered possible that an inoculated person could contract diphtheria, but the situation which presented itself at this school could not be disregarded and the investigation of these cases occurring in a semi-isolated community of about 900 persons was undertaken by S. F. Dudley and associates and reported through the Medical Research Council of Great Britain in April, 1934. He states that 44 cases of "diphtheria" have been discovered in the school during the five years following artificial immunization, but only eight were clinically recognizable, of which six were in Schick susceptible new entrants before they were immunized. The mean

annual rate of "diphtheria" for the five years subsequent to the artificial immunization was therefore 9 as against 45 per annum for notified diphtheria during the seven years prior to this event.

Dudley quotes an independent opinion of some of the cases seen in inoculated subjects and the following is an example:

"No. 6/94—Is not a typical case of diphtheria. On admission there was a soft exudate on each tonsil, more on R. than on L. The exudate was not membranous in appearance and was confined to the tonsillar area. The throat cleared very quickly. Even on the day after admission there was very little deposit to be seen, and the next day none. I question if he is suffering from diphtheria at all. The case may well, I think, be a question of simple tonsillitis in a diphtheria carrier."

As this problem and others connected with mass immunization against diphtheria occurs in this province some of the conclusions arrived at by this author are of interest:

1. Latent immunization is caused by carrier infection with toxigenic diphtheria bacilli.
2. Artificial active immunization is almost certain protection against recognizable clinical diphtheria.
3. In protected subjects, whether or not this Schick immunity has faded, diphtheria becomes modified to a trivial illness. This illness, however, may be a real diphtheria and not a carrier infection camouflaged with a simple sore throat.
4. Schick immunity is less permanent than is generally believed and in the absence of natural stimulus from the environment will fade more quickly the weaker the original artificial or natural antigenic stimulus by which it is produced.
5. The loss of Schick immunity is of little practical consequence since the subject is left in a sensitized condition and will regain his antitoxic immunity promptly on contact with toxigenic diphtheria bacilli.
6. Individuals show great variation in their response to natural or artificial antigenic stimuli.
7. The maintenance of Schick immunity in an artificially immunized herd (and to a less extent in natural immunes) depends on the artificial immunity being more or less constantly reinforced by the latent immunizing influences in the environment.

These workers are of the opinion that active immunization is a sound method of protection against recognizable infection with diphtheria bacilli, and certainly the experience on this continent with mass immunization against diphtheria has been satisfactory.

The gradual increase in the use of artificial immunization will tend to the possibility of more inoculated individuals with "diphtheria" coming to notce than in the past, but whether these are "real" diphtheria, or other infections coincident with a carrier condition is not easy to determine. However, experience so far seems to indicate that these conditions almost always are very mild and clear up rapidly. Several such cases have been reported in Manitoba during the past few months.

There are also reported cases of diphtheria of more than usual severity, which tend to progress very rapidly, developing in a few hours from a few mild symptoms to a severe infection. Treatment, to be affective in these conditions, must be given promptly and in sufficient amount.—C.R.D.

COMMUNICABLE DISEASES REPORTED

Urban and Rural : October, 1934

Occurring in the Municipalities of:

Chickenpox: Total 232—Winnipeg 174, St. James 14, Dauphin T. 6, St. Anne 6, Fort Garry 4, Tache 4, Arthur 2, Brandon 2, Rosser 2, Stonewall 2, St. Boniface 2, St. Vital 2, The Pas 2, Hanover 3, Miniota 3, Argyle 1, Dauphin R. 1, Kildonan E. 1, Unorganized 1.

Scarlet Fever: Total 90—Winnipeg 49, St. Boniface 7, Roblin R. 4, St. Vital 4, Rockwood 3, Woodlands 3, Selkirk 2, Stonewall 2, St. Andrews 2, Tuxedo 2, Brandon 1, Hanover 1, Kildonan N. 1, Killarney 1, Morris R. 1, Portage la Prairie R. 1, St. James 1, Transcona 1. (Late reported, September: Stonewall 3, Rockwood 1).

Whooping Cough: Total 80—Brandon 35, Hanover 16, St. Boniface 10, Albert 7, Winnipeg 6, Norfolk N. 2, Hamiota R. 1, Oak Lake 1, Wawanesa 1, Woodlands 1.

Diphtheria: Total 74 — Winnipeg 51, Stanley 10, Rhineland 4, Pembina 4, DeSalaberry 1, Ellice 1, Kildonan East 1, Manitou 1, Morden 1.

Tuberculosis: Total 45—Winnipeg 16, Unorganized 3, Brandon 2, Portage la Prairie R. 2, Portage la Prairie C. 2, Bifrost 1, Deloraine 1, Ellice 1, Fort Garry 1, Glenwood 1, Gimli R. 1, Hanover 1, Hamiota V. 1, Hillsburg 1, Kildonan E. 1, Lakeview 1, McDonald 1, McCreary 1, Morris R. 1, Ritchot 1, Silver Creek 1, Stanley 1, St. Anne 1, St. Laurent 1, St. Vital 1.

Measles: Total 31—Shoal Lake V. 8, Strathclair 4, St. Clements 4, Winnipeg 3, Shoal Lake R. 2, The Pas 2, Unorganized 2, Dauphin R. 1, Kildonan E. 1, Shellmouth 1, St. Boniface 1, St. Paul 1, St. Vital 1.

Erysipelas: Total 14 — Winnipeg 10, Dauphin T. 1, Morris R. 1, Rockwood 1, Unorganized 1.

Typhoid Fever: Total 8—St. Paul E. 2, Unorganized 2, Grandview R. 1, Rhineland 1, St. Andrews 1, Winnipeg 1.

Mumps: Total 5—St. Anne 1, St. Vital 1, St. James 1, Unorganized 1, Winnipeg 1.

Anterior Poliomyelitis: Total 1—St. Francois Xavier 1.

Influenza: Total 1—Winnipeg 1.

Septic Sore Throat: Total 1—Morris R. 1.

Paratyphoid: Total 1—Harrison 1.

Venereal Diseases: Total 139–Gonorrhoea 95, Syphilis 44.

DEATHS FROM ALL CAUSES IN MANITOBA

For the Month of August : 1934

URBAN—Cancer 31, Tuberculosis 10, Pneumonia (all forms) 9, Influenza 2, Typhoid Fever 2, Puerperal Fever 1, other causes under one year of age 4, all other causes 139, Stillbirths 12. Total 210.

RURAL—Cancer 17, Tuberculosis 10, Pneumonia (all forms) 8, Puerperal 2, Typhoid Fever 1, Erysipelas 1, other causes under one year of age 4, all other causes 128, Stillbirths 17. Total 188.

INDIANS—Tuberculosis 9, Whooping Cough 4, Pneumonia (all forms) 2, Influenza 1, Typhoid Fever 1, other causes under one year of age 2, all other causes 6. Total 25.

NOTICE

Will doctors who send accounts for medical services to the Unemployed Relief Commission (Mr. A. MacNamara) or to the Rural Rehabilitation Commission (Mr. R. J. Shore), please itemize same? Otherwise, they cannot be passed for payment, but will be returned.

Two's Company--- Three's a Crowd

"Sickness is a matter intimately personal. It is a time when sincerity of dealing cannot be compromised nor human feelings flouted.

"How disturbing, then, is the thought of having a third person or alien party exercise an influence on the relationship between the patient and his physician, the two persons who, above all others, are most vitally concerned when sickness enters the home.

"Yet this third party influence, with all its unpleasant and disturbing sequels, will inevitably be thrust upon patient and physician should some of the current new schemes of medical practice ever gain acceptance.

"Carried to their full development, such plans would mean that your family doctor would be the hireling of a commercial organization or of a department of the state, the former built up necessarily by business promotional efforts, high pressure salesmanship and price competition, the latter made compulsory by legal enactment.

"Experience has already shown that contract or insurance schemes would not be successful if they observed carefully the principles of conduct and fair competition which operate as definitely for the public good as for professional honor. In these principles financial gain is subordinated to the prime object of service to the patient and to humanity.

"Furthermore, the history of some of these ventures reveals highly deplorable tendencies. "Scare head" advertising has appeared as a means of frightening people into subscribing for memberships. Medical service has been promised at ridiculously low and actually impossible rates. The services of hundreds of physicians have been promised to subscribing members, whereas actually but a small fraction of that number were "signed up" and available. Patients have found that they must be served by the physician assigned to them, not by the man of their choice. And the poorer classes have paid the same price for medical service as the very wealthy.

"No, the fine, sympathetic, humanitarian service at present rendered by the family physician can never be satisfactorily replaced by a commercial organization that retails medical service for a profit, nor by the state with a mechanized or regimented medical profession. The interjection of such agencies between patient and physician is unnecessary and cannot fail to be disturbing to all parties concerned."

—from Mead Johnson & Company's Announcement in Hygeia, Sept. 1934.

Winnipeg Medical Society

The regular monthly meeting of the Winnipeg Medical Society was held in the Physiology Lecture Theatre of the Medical College on Friday, November 23rd, the programme being as follows:

1. "The Role of the Parathyroid Glands in Calcium Metabolism and Bone Dystrophies" — Dr. G. S. Fahrni.
2. "A Review of Ten Years of Compensation Board Relations"—Dr. F. D. McKenty.

Position Wanted

Office Secretary desires position. Fifteen years' experience with diagnostician. References. Tel. 61 243.

Advance Notice To the Medical Profession

"Health Spot" Shoes

- Within two weeks "HEALTH-SPOT" SHOES will be available at Macdonald's. These entirely different shoes incorporate improved ideas in foot correction and will help solve your foot problems.
- Medical Men and Women know that most weak feet lean inward — carrying the weight on the inside — cramping nerves and blood vessels which lead to serious complications in other parts of the body.
- The answer to this foot problem is found in "HEALTH-SPOT" SHOES — straightening weak feet — releasing cramped nerves and blood vessels so they may function normally. Straightening the heel bone — restoring normal alignment to all bones of the feet — placing the weight on the outside where it belongs.
- Relief is rapid — comfort and foot health are permanent because the feet are held in a normal position by "HEALTH-SPOT" SHOES.
- This is YOUR invitation to inspect and discuss "HEALTH-SPOT" SHOES. They will be at Macdonald's two weeks from to-day.

"You Are As Young As Your Feet"

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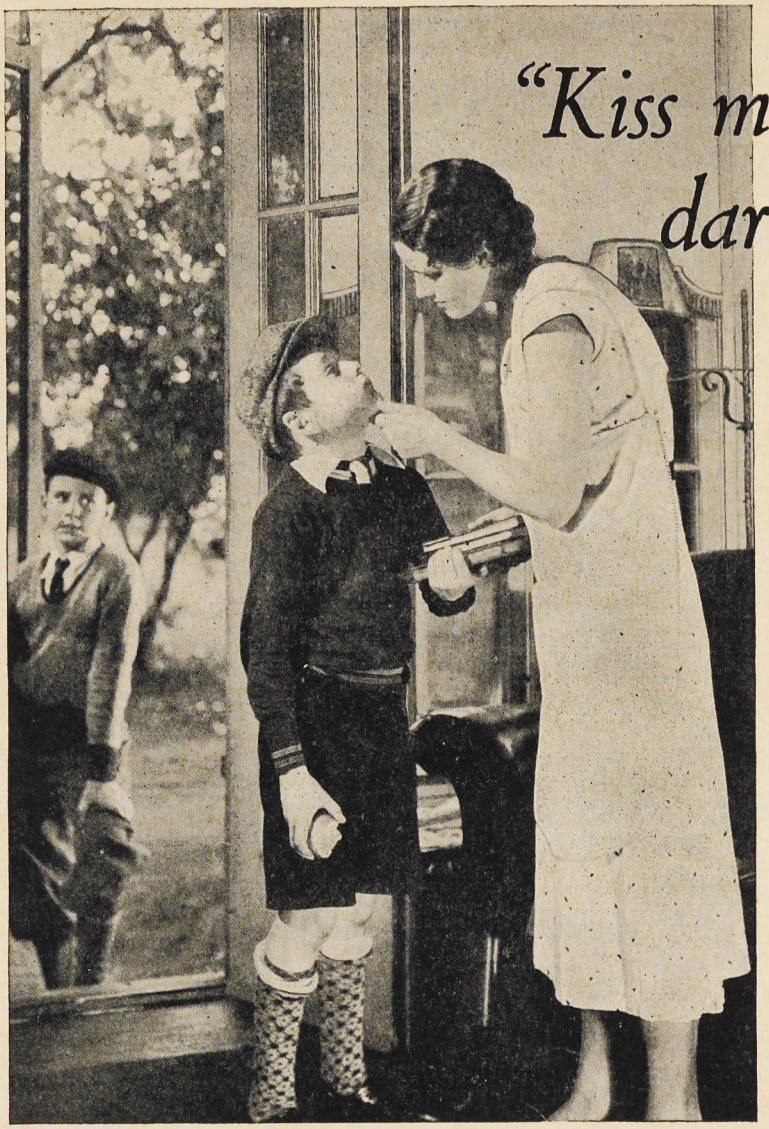
Just south of the City Hall



"Kiss me goodbye, darling—

and eat your apple on the way to school"

MOTHERLY kisses are all right, and so are apples, *but*—

Thousands of little boys and girls are rushed off to school hungry every morning—with a kiss and/or an apple or bun—because insufficient time was allowed for the child's morning meal.

BREAKFAST, which should form an important foundation for the growing child's eager activities, frequently is a mere snack, hurriedly gulped, so that many a child goes to school half-starved. How can a hungry child learn his lessons?

In behalf of tired mothers, it must be said that the long cooking of ordinary cereals is a drudgery, especially if there also be smaller children who break her rest during the night and clamor for attention before dawn. In most cases, the older members of the family lose out at breakfast time not because the mother is lazy or inconsiderate, but simply because she is exhausted and requires extra rest.

A happy solution of the breakfast problem, one that may even hold the home together during such troublous times, who knows, is PABLUM.

PABLUM banishes over-night and early-morning cereal drudgery,. so that mothers can get their deserved rest. At the same time, all members of the family, including the school children, are assured of a quick *nourishing* breakfast.

To prepare PABLUM, simply add milk or water of any temperature, and serve with cream, salt and sugar. If preceded by orange or tomato juice and followed by a glass of milk, and a capsule of Mead's Viosterol in Halibut Liver Oil, such a breakfast fulfills every nutritional requirement: **Protein√ Fat√ Carbohydrate√ Vitamins: A, B, C, D, E, G√√ Minerals: Calcium, Phosphorus, Iron, Copper, Etc., Etc.√√ Calories√**

Pablum (Mead's Cereal precooked) is a palatable cereal consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, and salt.

MEAD JOHNSON & CO. OF CANADA, LTD., BELLEVILLE, ONT.

Please enclose professional card when requesting samples of Mead Johnson products to cooperate in preventing their reaching unauthorized persons